



Educational Strategies During The Covid-19 Pandemic: Systematic Review

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Abstract

This is a qualitative research article; a systematic review of more than 15 texts was carried out. Its objective is to identify the findings related to educational strategies during the COVID-19 pandemic in studies published since 2020. The research is based on the subjective knowledge of the strategies that were implemented in the educational system at a global level to face the health crisis and the impact of these methods on the student. As main findings, an increased use of ICTs was observed, a fact that was not considered before the pandemic, synchronous platforms such as Zoom, Cisco Webex, Microsoft Teams, and Google meet were the first choice for live classes with students, which allowed interaction through chat, camera, and screen presentation, among others. On the other hand, the use of asynchronous digital platforms that complemented online education, such as Moodle, was evident. However, because it was a sudden change that was experienced in education, most of the strategies were applied in an improvised way and without taking into account the achievement of learning, reflected in student dissatisfaction. Concluding Higher Education Institutions should evaluate the way in which the new educational strategies were implemented during that period and take measures for improvement since these tools became an essential component in the educational system.

Keywords: Students, Higher education, Health crisis, Covid-19, Educational Strategies.

1. Introduction

Education is understood as a process of a cultural and human nature, for this reason it is necessary to understand the nature of man and culture in a unitary way in order to identify its purpose. The individual is a being characterized by being unique in his natural environment that, although sharing the same biological and chemical properties, differs from animals by the fact that human behavior is impossible to predict. On the other hand, culture is everything that man has built and developed individually and collectively, such as technology, religion, science, arts, customs, morals, language, among others. Thus, the term "education" is becoming increasingly complex and difficult to understand, because although

we are linked to it and it is reflected in the care we receive as children and the relationships we maintain at the family level, it takes root in the classroom; experiences that shape our way of being (León, 2007; Luengo, 2004).

Education itself is an individual, dynamic whole that is subject to drastic modifications. Throughout history it has suffered traumas and critical situations. A clear example of this dynamic is the current global public health situation caused by the COVID-19 epidemic, an unprecedented difficulty that affected all areas and led to the closure of tasks that were traditionally performed in person, especially in educational institutions around the world, being these determinations necessary to prevent the proliferation of the virus and minimize its impact. Due to this, a chaotic behavior was evidenced in education because, in this period, many changes occurred in its form, it was observed how it continued but at the same time how it discontinued, grew and decreased during this health problem so drastic for humanity (CEPAL-UNESCO, 2020). Colombia does not escape from this problem because, since the beginning of the pandemic, a marked educational gap has been noted, having serious consequences in the formation of human talent which is an essential part of the productivity and economic development of the country (Melo-Becerra et al., 2021).

The COVID-19 pandemic was an unfortunate event that caught all governments off guard. However, in the education dimension, some measures were taken that only favored a small part of the population.

Among the solutions that were proposed, according to the CELAC-UNESCO report (2020): “26 countries implemented forms of Internet-based learning and 24 established distance learning strategies in offline modalities, including 22 countries that offered distance learning in both modalities (offline and online), 4 that still have exclusively online modalities and 2 with only offline modalities”.

According to recent studies show that the educational system has taken a new path with the adoption and strengthening of the use of ICT during the COVID-19 pandemic, considered as one of the most valuable resources in this period of health crisis, facilitating learning and overcoming the barriers imposed by COVID-19 (Lorduy Flórez & Naranjo Zuluaga, 2020). These changes resulted in a novel methodology that, although it does not replace the essence of face-to-face, made it possible to confront, in a certain way, the adversity that arose at the time. This information is confirmed by the research of Crespo-Fajardo and Pillacela-Chin (2021), where teachers describe their positive experience with the use of new technologies, as classroom tools that opened a horizon little explored in education. In other words, it is evident that there are few studies that address these new methodologies or educational strategies that were adopted during the pandemic period and their impact on students.

According to the above, the purpose of the study is to expose the findings related to educational strategies during the pandemic by COVID-19 in studies published since 2020.

1.1. Educational Strategies

Education is the most important element in a society. Following this premise, it is necessary to reach all possible instances to expand education to a greater number of people. These conditions for the learning of individuals are known as educational strategies, which can be infinite; however, it depends on the limitations of the environment where they are being carried out. As civilization advances, new methods of education that are more effective in their implementation and achieve proper learning are studied (Euroinnova, 2021).

There are many concepts that revolve around this term. Vargas (2020), defines the pedagogical skill as a set of works that are aimed at executing an activity proposed to solve a problem, such acts will allow integrating, building and achieving the necessary sciences in teachers and students in the academic scenario.

On the other hand, there is the reflection of Juárez and Gamarra (2012) about these strategies, cataloging them as a way of organizing the knowledge possessed by the teacher, to provide effective and meaningful learning.

1.2. The ICT

Information and Communication Technologies are understood as those processes that are indispensable for the management and transformation of research; through the use of electronic devices and programs that allow the protection of information (Sánchez-Duarte, 2008).

Throughout the years, the literature has considered the use of new technologies as a key aspect in training tasks because of their ease of access to knowledge, positively impacting the educational system. Resulting in greater coverage and attention to a greater number of people who are part of the system (Cruz-Carbonell et al., 2020). ICTs present a series of models that help to break temporal and spatial barriers of nations and cultures (Castells, et al., 1986. Cited by Castro, S, Guzmán B and Casado D, (2007).

1.3. COVID-19 pandemic

According to the World Health Organization (WHO), the coronavirus discovered in recent years has been COVID-19, this and the diseases it causes, were unknown before it broke out in Wuhan, a city located in China, in December 2019 and spread throughout the planet (Enríquez & Sáenz, 2021).

Thus, COVID-19 has been considered a pandemic. Etymologically, the word "pandemic" comes from the Greek *panðemonnosêma*, an expression that translates as "disease of the whole people". This concept, at first sight, seems to be a clear, unanimous and continuous concept in time that does not deserve discussion. However, Henao-Kaffure (2010) mentions that: When approaching history, it is possible to observe that it is a social edification that is transfigured over time and in which different currents of thought inform, such as the microbial perspective, the biological and social vision. The WHO in its last publication of 2009, which dealt with the development and response to an influenza pandemic, defines pandemic as "Human infection with a new virus that is efficiently transmitted from person to person and that affects inhabitants of at least two WHO regions" (Henao-Kaffure, 2010).

2. Method

A documentary analysis of the existing literature that will address the topic of educational strategies during the COVID-19 pandemic was conducted, with the following question: What have been the findings in the different studies on educational strategies during the COVID-19 health crisis? The systematic review was chosen because of its rigor and transparency that it guarantees during the research process. Being a method that allows replication and updating over time; because it goes beyond reviewing any study in isolation, but to analyze the evidence that is available about the problem and expose, in a systematic way, the results of primary sources (Zawacki-Richter, 2020). Prior to the search, keywords were defined as: "education", "strategies", "pandemic", "COVID 19" and "students". These terms were linked in logical sequences using Boolean operators (AND, OR), which allowed the establishment of search equations. These equations were entered in meta-search engines such as ScienceDirect, Scopus, Google Scholar, MEDLINE, redalyc.org, Scielo and OVID.

Quantitative, qualitative or mixed studies, systematic reviews, commentaries, open access special communications, which will address the topic of educational strategies during the COVID-19 pandemic, in English, Spanish or Portuguese, published since 2020 and whose target population were students and

teachers of higher education, were included. Once the criteria were established, the search and selection process began.

Of the 100 research studies analyzed in the search, 40 were found to be copies after the first examination. Once the number was reduced to 60, we proceeded to analyze the title and abstract, where 25 articles were excluded due to lack of clarity in the information at the time of addressing the problem. Of the remaining 35 studies, a complete reading was carried out where the matrix in Excel® was filled out, where each document was analyzed taking into account the following aspects: title, language in which the article was published, place where the study was carried out, objective, main results, methodology used and conclusions of the study; after the exhaustive analysis, a total of 15 studies were chosen (Figure 1).

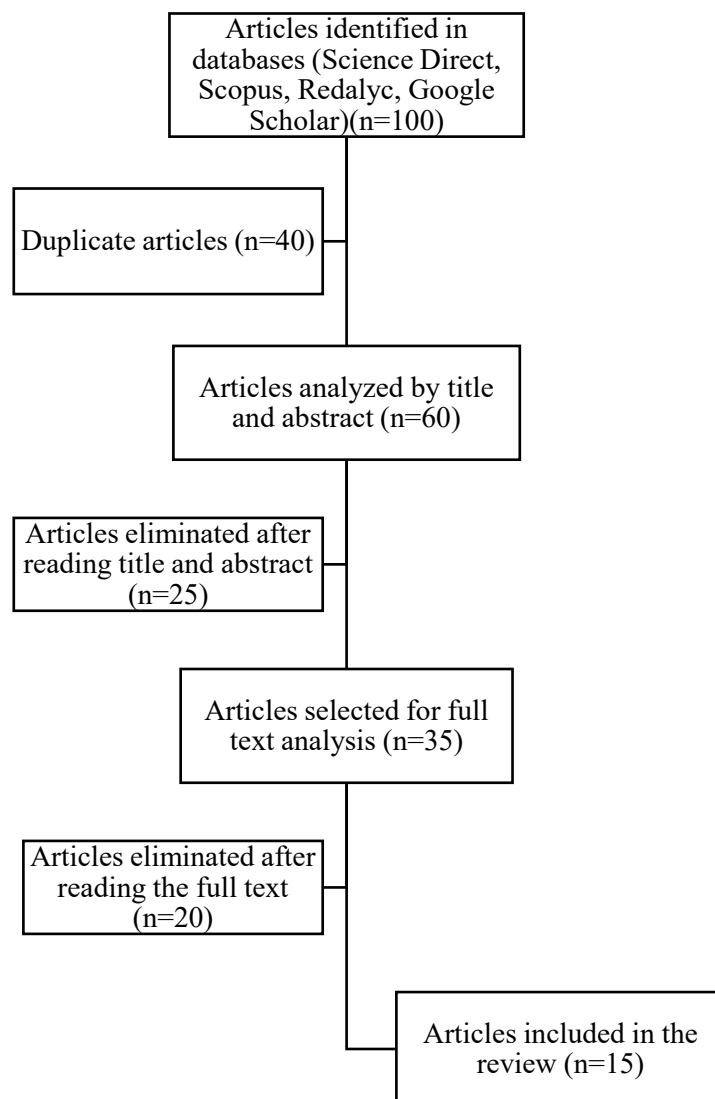


Figura 1. PRISMA diagram to represent the item selection process.

3. Results

According to the type of research, most of the studies were quantitative and qualitative paradigms. Of the articles obtained from the databases, 27% corresponded to ScienceDirect, 46% to Google Scholar, 20% to Redalyc and only 6% to Scopus. Of these 5 articles were published in English (33%), 9 in Spanish (60% of the total number of articles) and only 7% (1 article) in Portuguese. As for the place of publication, the studies were distributed among the continents of Asia, Latin America and Africa. Once

the selected articles were analyzed, two main categories were obtained: Educational strategies implemented during the crisis and student perception of the strategies implemented. In addition to these categories, the mental health of university students during their academic activities was also considered.

3.1. Educational strategies implemented during the health crisis by COVID-19

It was not conceivable that teachers, administrators, students and other professions would be working or performing all of their activities at home. Only when the new environment, characterized by a global public health crisis secondary to a coronavirus or COVID-19 pandemic, was encountered was this scenario considered (Chong-Baque & Marcillo-García, 2020).

Before this dramatic event, the use of ICT in education was still a little studied topic and left in the background; the few researches that addressed this topic emphasized its implementation, as it was a key aspect in school processes, since it facilitates access to discernment. Being used by individuals with difficulties to attend in person to higher education institutions and who resorted to distance education (Cruz-Carbonell et al., 2020; Mendez Escobar, 2021).

Now, with the changes that society has faced, academic entities have found it necessary to resort to virtual media with the help of ICTs to maintain pre-announced academic calendars, resulting in "a phase of transition from the traditional educational system to the digital system" (Pal et al., 2021, p. 3). In some studies the aforementioned change is evidenced where teachers used communication channels directly with their students that, before the pandemic were not conventional, and organized a distance learning through digital platforms that allowed a connection in synchronous or asynchronous format as Blackboard Collaborate, Zoom, Cisco Webex, Skype, BigBlueButton, Edmodo, Microsoft Teams, Google Meet, Moodle, email, among others; which provided an experience that allowed creating live classes, chatting, having small group rooms and recording the sessions for later review. Virtual classrooms were also available to complement the educational experience, such as reading modules and developing extra-class activities (Manrique-Gutiérrez et al., 2021; Nisrine & Abdelwahed, 2022).

In some cases, teachers interacted with their students through instant messaging, considered a popular tool, such as WhatsApp and even developed their own personal blogs or primers; these strategies were observed more frequently in scenarios with socioeconomic limitations, where students did not have access to internet or technological devices (Expósito & Marsollier, 2020; García-Leal et al., 2021).

On the other hand, a study conducted in Colombia stands out, where a little known and innovative strategy known as virtual reality was implemented. It is considered as a technology that allows the student or user to immerse in a graphic simulation in 3D format and interact with it, fulfilling the function of replacing physical reality with a fictitious environment generated by a computer. In this case, the strategy was applied in the faculty of economic and administrative sciences (Muñoz-Hernandez et al., 2020).

With the acceleration in the implementation of virtuality, teachers did not have the necessary knowledge about didactics or pedagogy in this area; for this reason they had to take courses in particular virtual to be instructed and to be able to instruct in this characteristic, being a beginning that had many obstacles for both the teacher and the student (Jiménez-Segura, 2021; Mendez Escobar, 2021).

Despite the availability of electronic tools that allowed constant communication with the student, some aspects were not covered in their entirety, since it was impossible to address them virtually. The studies show that the universities were forced to freeze and postpone laboratories and workshops for the next period, because they required face-to-face attendance. To this was added the delivery of abundant reading aids and orients the way learning could not be evaluated correctly (Hidalgo-Benites et al., 2021).

However, Sanchez (2022) clarifies the picture about the education experienced since March 2020, where he states that it is not an online or virtual education as has been mentioned in multiple studies, but it is an emergency remote education or by its acronym ERE, because to be considered an online educational system, it must have solid pedagogical strategies, which have been studied over time to be able to apply them correctly. On the other hand, ERE, the education currently experienced, had a component of improvisation, characterized by a rejection of both the teacher and the student to the distance modality.

3.2. Student perception of the strategies implemented

One of the aspects to evaluate whether the educational strategies used during the pandemic are being adequately applied is undoubtedly student satisfaction (Abdullah et al., 2022). According to the results obtained in the research analyzed, studying at home became a challenge for university students, as there is evidence of a marked dissatisfaction with just justification. In Afghanistan it was reported, in the quantitative study conducted by Qawi (2021), that most of the students surveyed had a series of problems regarding the connection to their online classes because they did not have permanent and stable access to an internet network and electricity, lack of technology facilities and financial problems were other drawbacks reported during the process; reflecting an irregularity in learning (Pal et al., 2021).

But this phenomenon does not occur only in students, teachers also experienced dissatisfaction in the achievement of learning objectives with the implementation of the new strategies. García Leal (2021), confirms the aforementioned information in his quantitative study applied to 548 university teachers; where 2.9% affirmed that the objectives were hardly achieved and 40.9% affirmed that the achievement of learning was moderate.

As the pandemic progressed, students adopted new measures for their learning, since they began to use platforms other than those established as an educational strategy such as Zoom or Moodle to access knowledge, due to the technical problems they sometimes presented and the way in which the teacher used them. According to López, M et al. (2021), in their mixed approach study, 69% of students preferred to acquire their knowledge autonomously through pages arranged on the Internet and tutorials; in this case YouTube became the platform with the most visits during the pandemic by students, who mention in the interviews that teachers should improve and reinforce their strategies and digital competences, they considered that classes were monotonous and not very interactive. Causing mental fatigue, to the point that they connected to the class just to comply with attendance (Jiménez-Segura, 2021).

3.3. Mental Health during the pandemic

An aspect that is little evaluated during the application of the new educational strategies is the mental situation in which the students were and how they faced this problem. Depression was a predominant actor; this mental disorder is evidenced less frequently in students belonging to Nordic countries and France; however, alarming levels were reported in countries such as Turkey, Spain and the United States. Women were the ones who suffered more depression during confinement, as well as students with fewer economic resources and social support (Van de Velde et al., 2021). In the qualitative study conducted by Jiménez (2021), the students stated that they experienced feelings of stress accompanied by uncertainty, due to the fact that, in the midst of the chaotic environment of the virtual form in education, it hindered environments of healthy recreation and self-care.

4. Conclusions

The pandemic brought with it a myriad of changes that, for human beings, were considered drastic at the time; affecting the economy, interpersonal relationships, psychosocial factors and education. The latter had an unprecedented impact because the institutions, trying to avoid contagion by the coronavirus, closed their facilities and began to transform their strategies towards a new horizon, something little known and totally new for some administrators, teachers and students.

This problem has been the subject of discussion in multiple investigations, reinforced during the pandemic. It became a trend during the period of confinement, being necessary to organize all the knowledge obtained in the development of these studies.

Among the results that stand out in the systematic review is the imperative need to use technologies as the only means at the time to face the health crisis and continue teaching students without any interruption. However, the other side of these strategies was seen, since the lack of access and low digital competence in the use of these tools or platforms were obstacles that interfered with the achievement of learning objectives.

Thus, classes became tedious and monotonous for students, who as time went by lost interest and only resorted to these digital tools to meet the requirements of the institution and higher education. In addition to this, mental health was greatly affected, especially in university students, as the stress, anxiety and depression that they handled during the confinement reached exorbitant levels.

For this reason, it is of utmost importance that universities evaluate their educational strategies during the pandemic period and implement improvements that will help the teaching-learning process to be effective and appropriate.

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